

# Introduction

References and Presentation at:  
<http://www.elinux.org/scale-tooltips>

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- Dave Anders aka prpplague

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- Dave Anders aka prpplague
- Employed at Intel as part of OTC/MinnowBoard

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- Inexpensive Essential Tools

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  - Logic Analyzers

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  - Multimeters

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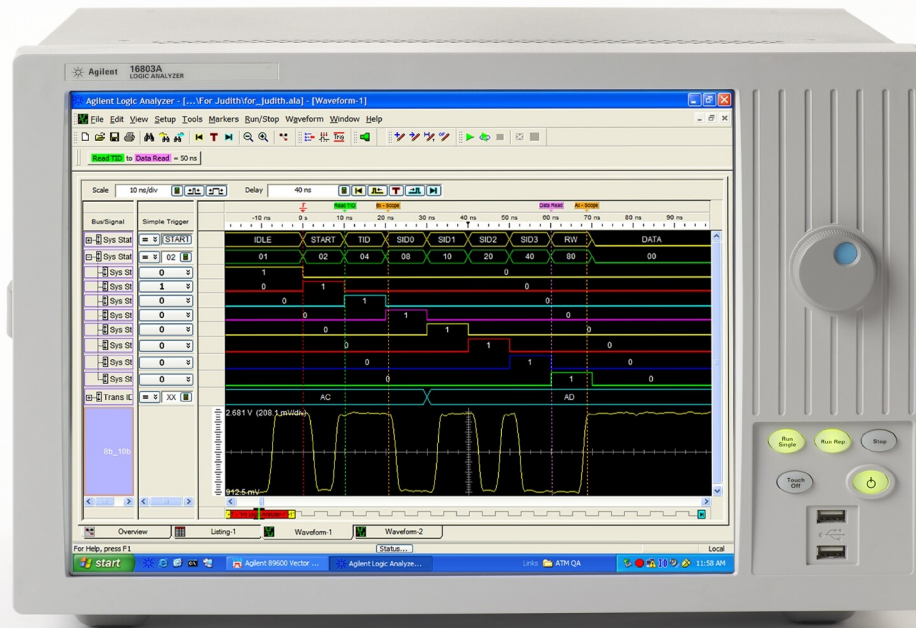
- Dave Anders aka prpplague
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  - Logic Analyzers
  - Oscilloscopes
  - Multimeters
  - Microscopes



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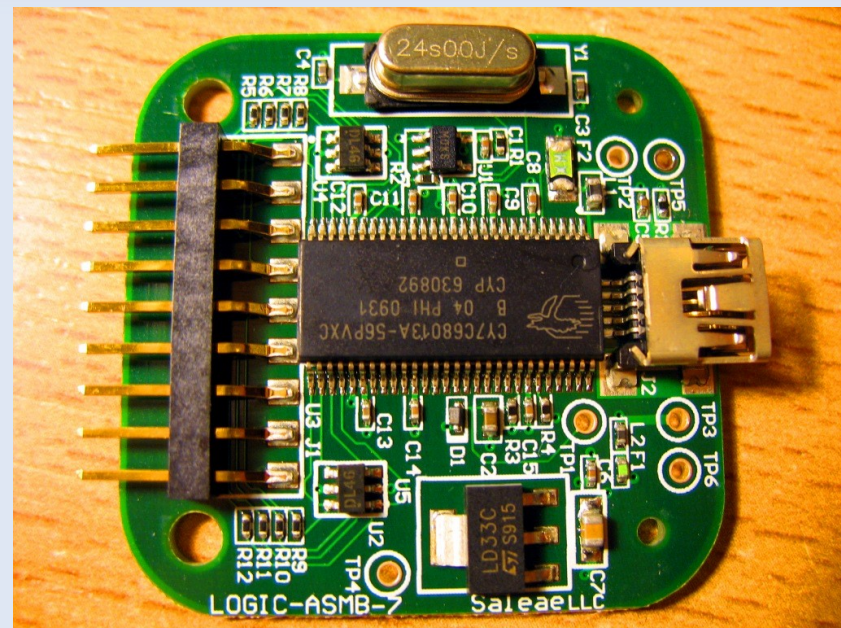
- Dave Anders aka prpplague
- Employed at Intel as part of OTC/MinnowBoard
- Inexpensive Essential Tools
  - Logic Analyzers
  - Oscilloscopes
  - Multimeters
  - Microscopes
  - Soldering Irons

# Logic Analyzers



# Logic Analyzers

- Saleae Logic - Cypress FX2
  - 8 Channels
  - 24MHz



# Logic Analyzers

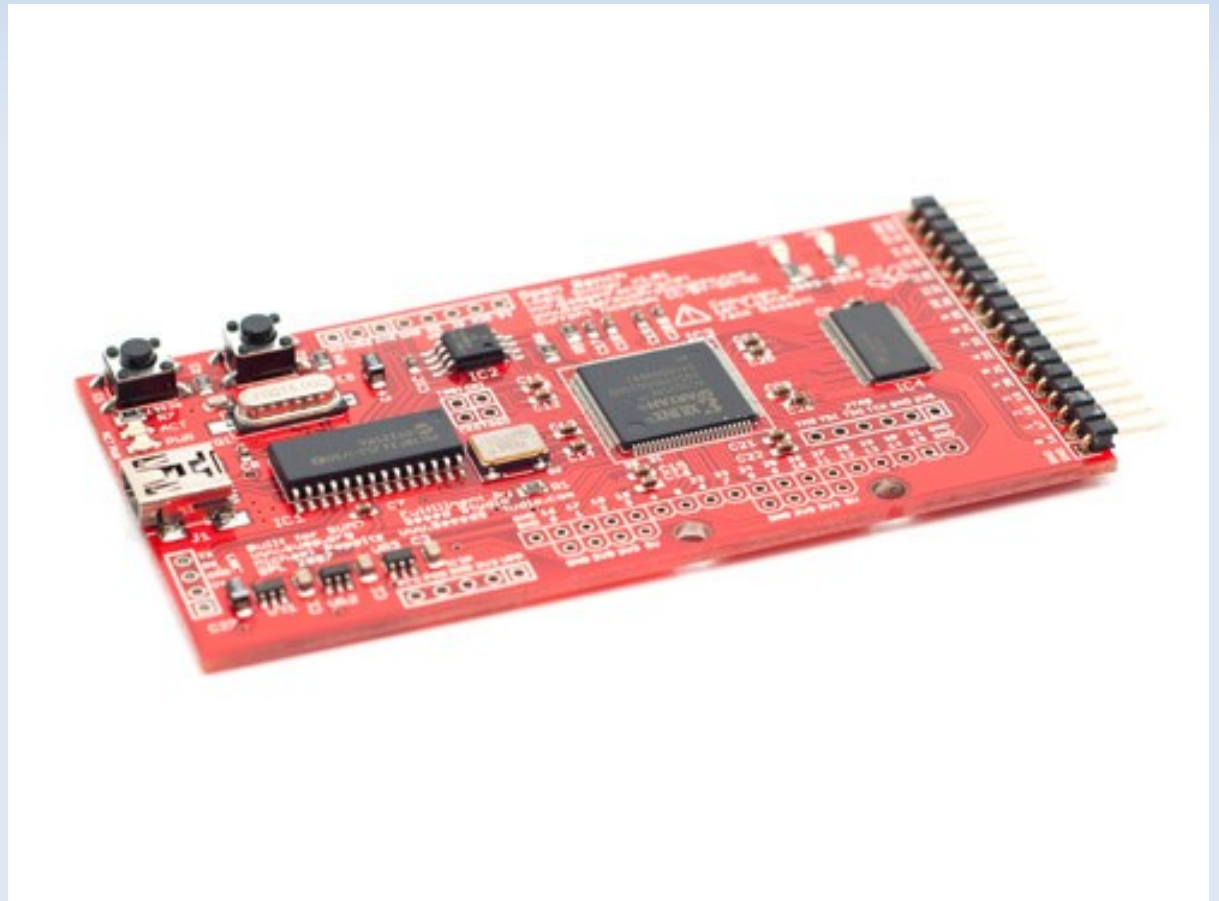
- Saleae Logic - Cypress FX2
  - 8 Channels
  - 24MHz
  - Clones
  - \$15 to \$25





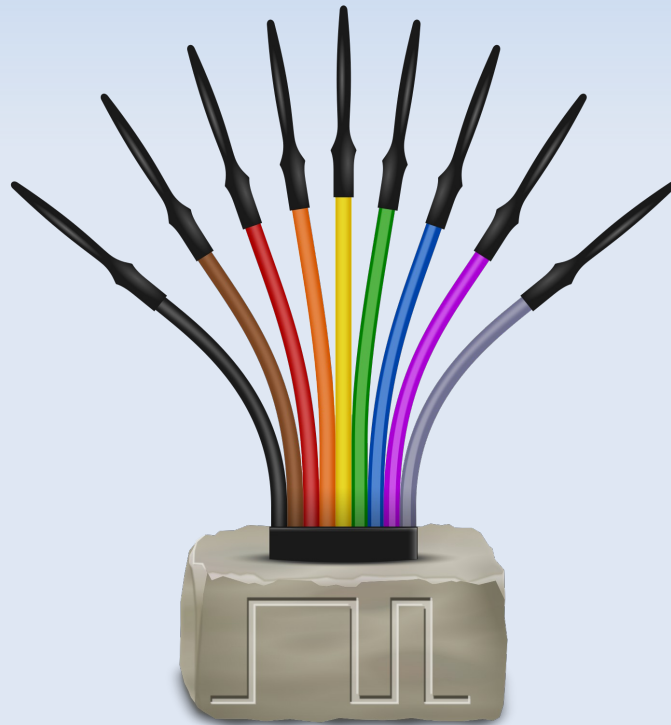
# Logic Analyzers

- Saleae Logic - Cypress FX2
- Open Workbench Logic Sniffer
  - 32 Channels
  - 100MHz
  - \$50.00



# Logic Analyzers

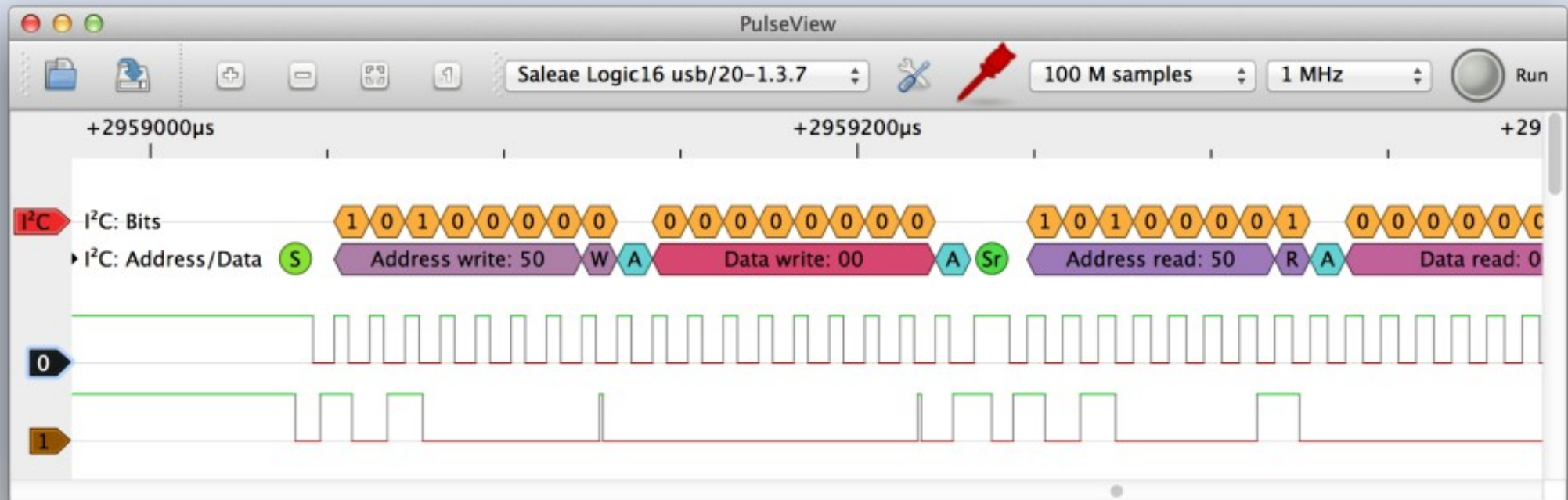
- Saleae Logic - Cypress FX2
- Open Workbench Logic Sniffer
- Sigrok.org



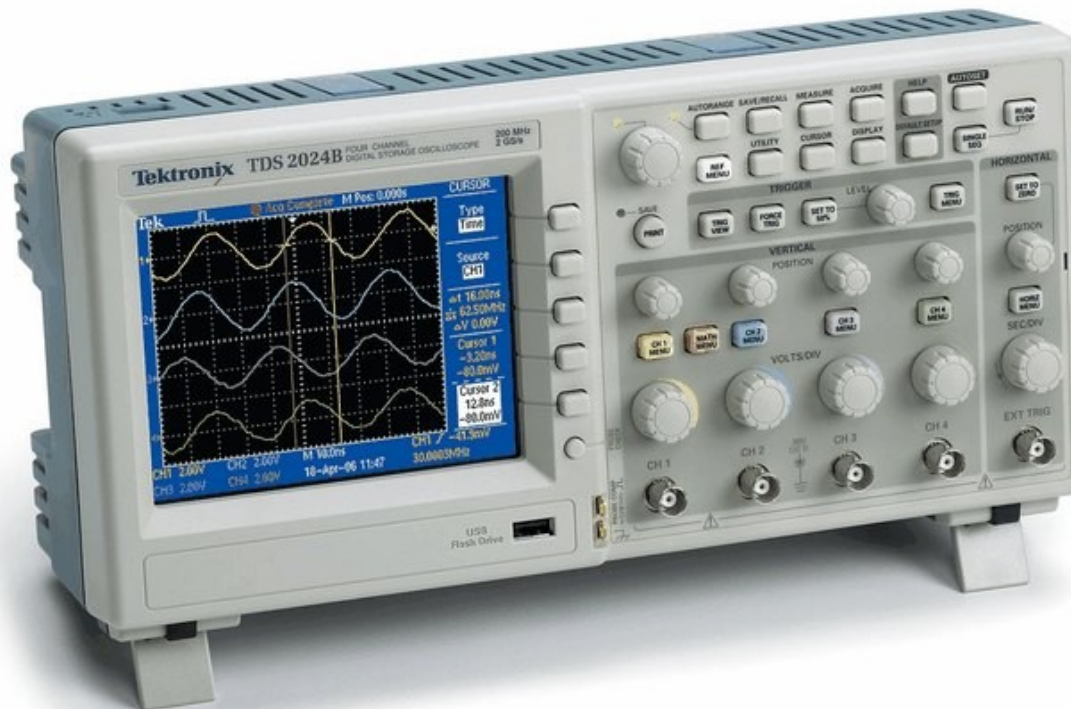
**sigrok**

# Logic Analyzers

- Saleae Logic - Cypress FX2
- Open Workbench Logic Sniffer
- Sigrok.org
  - Open Source Project
  - Protocol decoding



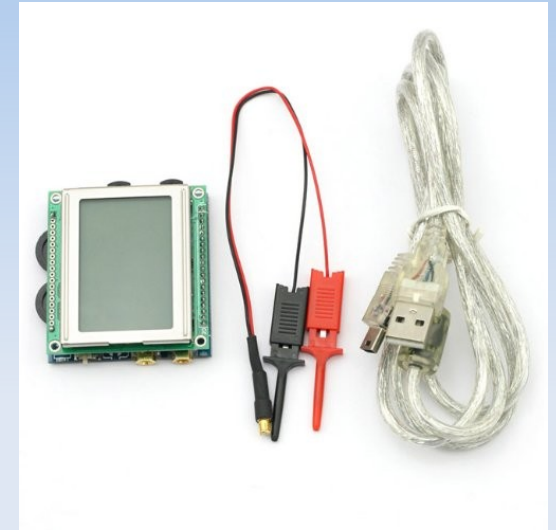
# Oscilloscopes





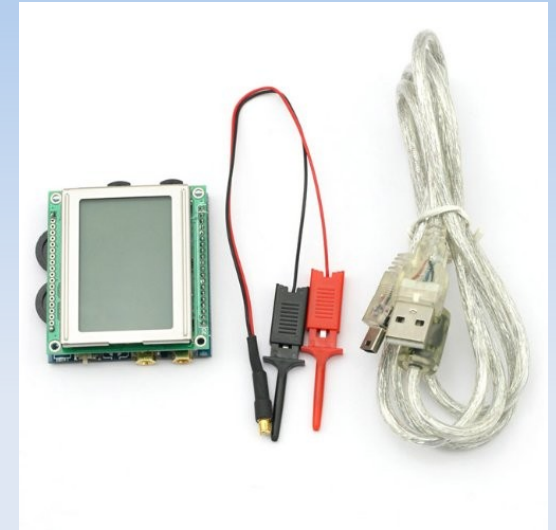
# Oscilloscopes

- Handhelds



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- Handhelds



# Oscilloscopes

- Handhelds
  - I2C 400KHz
  - Power Glitches
  - Timing Error
  - Bandwidth
  - Sample Rate



# Oscilloscopes

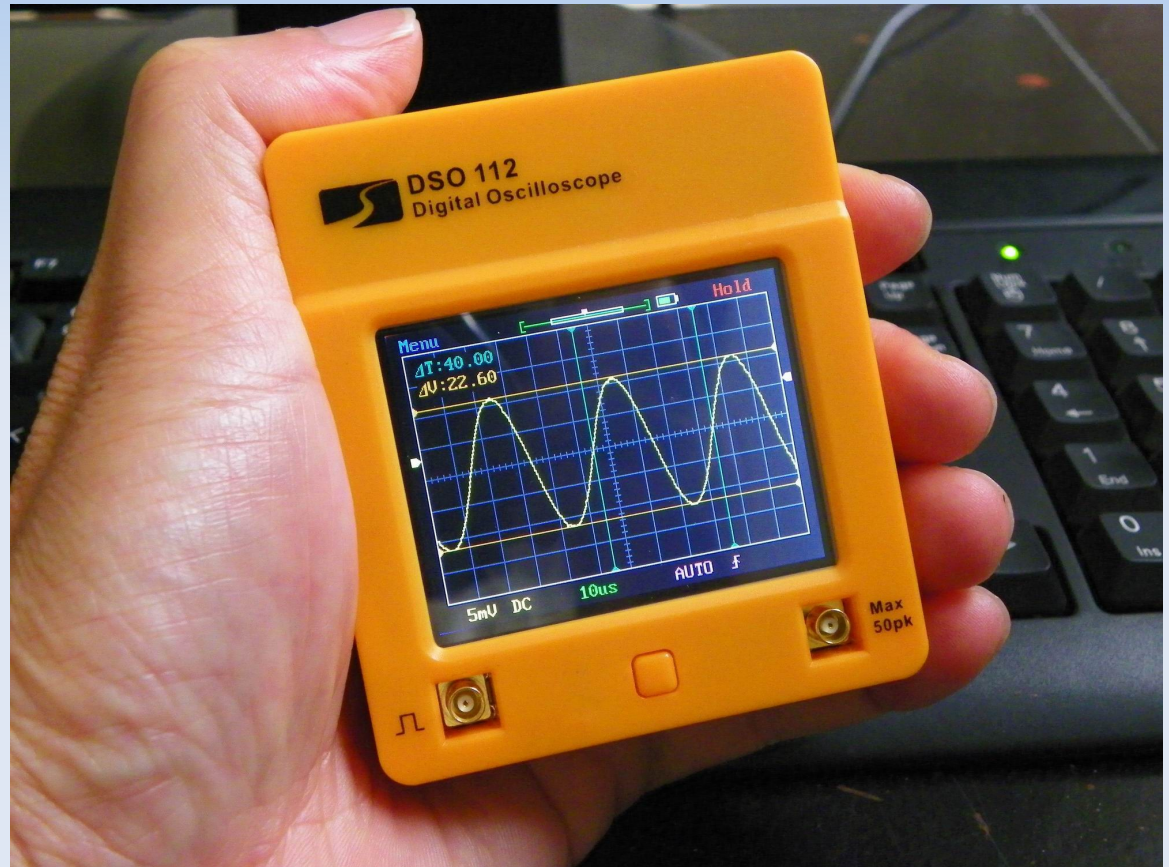
- Handhelds
  - DSO112
  - Touchscreen
  - 2MHz Bandwidth
  - 5Msps Rate





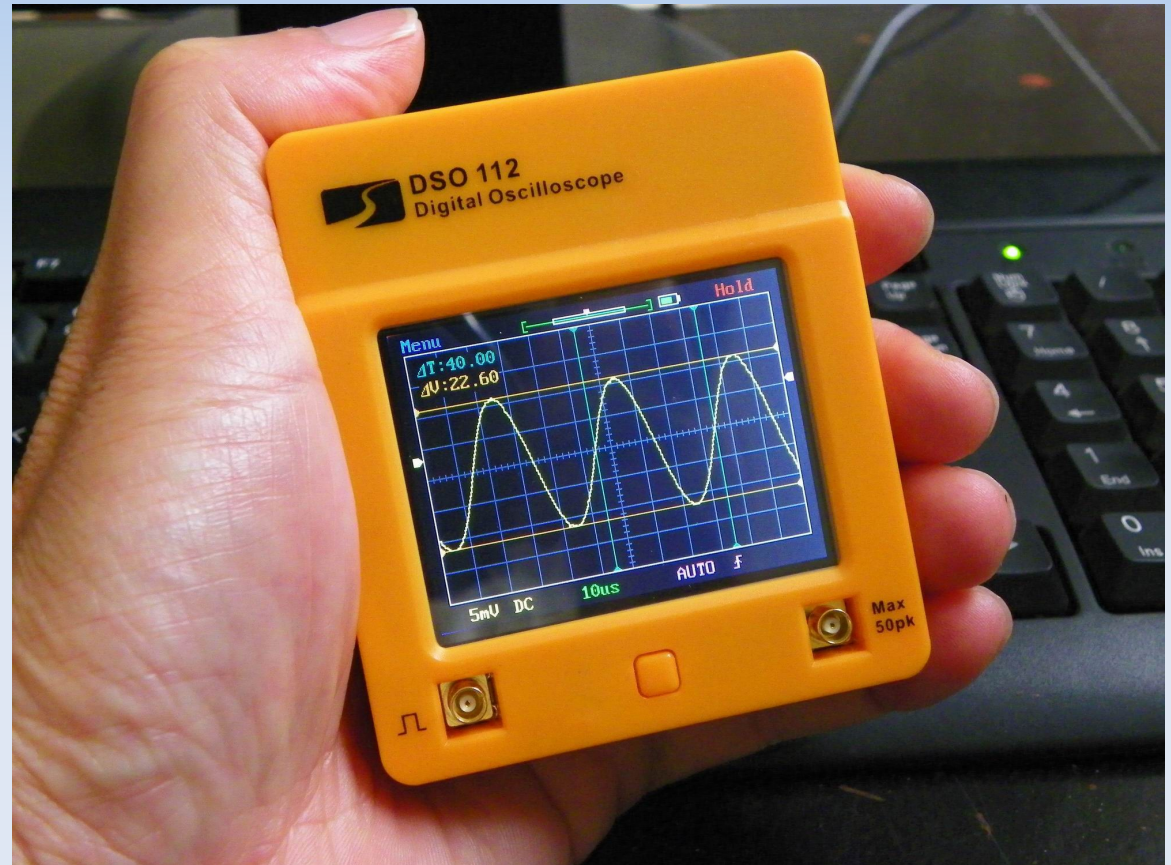
# Oscilloscopes

- Handhelds
  - DSO112
  - Touchscreen
  - 2MHz Bandwidth
  - 5Msps Rate
  - User Interface



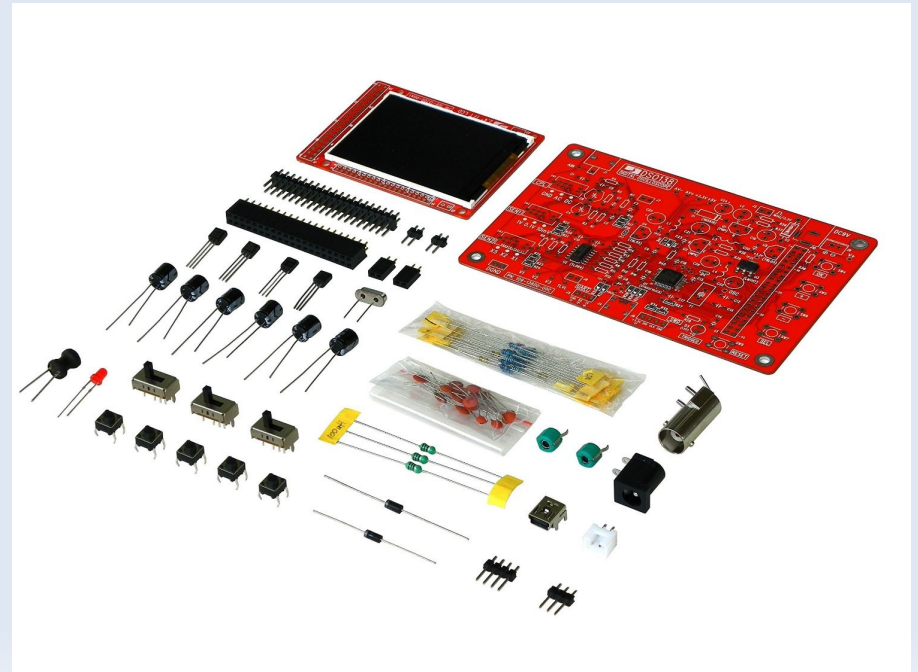
# Oscilloscopes

- Handhelds
  - DSO112
  - Touchscreen
  - 2MHz Bandwidth
  - 5Msps Rate
  - User Interface
  - \$70.00



# Oscilloscopes

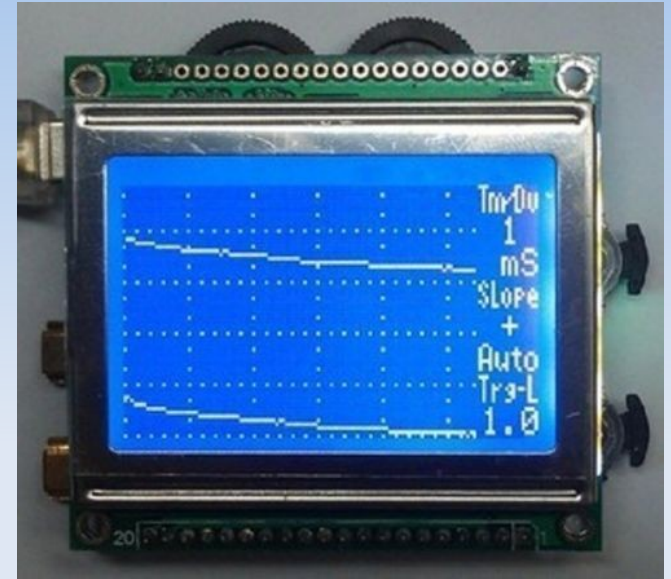
- Handhelds
  - Don't Waste Money





# Oscilloscopes

- Handhelds
  - Don't Waste Money
  - AVR for \$25





# Oscilloscopes

- Handhelds
  - Don't Waste Money
  - AVR for \$25
  - Quad DSO \$225
  - Dual DSO \$150



# Oscilloscopes

- Handhelds
  - Don't Waste Money
  - AVR for \$25
  - Quad DSO \$225
  - Dual DSO \$150
  - Generic DSO \$200
    - More features
    - Easier to use
    - Higer specs



# Multimeters



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- Needle Probes \$5.00



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- Tweezer Probes \$5.00





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- Alligator Clips \$5.00



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- Tweezer Probes \$5.00
- Alligator Clips \$5.00
- SMD Meter \$30.00



# Microscopes





# Microscopes

- Linux Support
- Resolution
- Light Control
- Picture Button



# Microscopes

- Adafruit \$70.00



# Microscopes

- Adafruit \$70.00
- Stand \$50.00



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- Adafruit \$70.00
- Stand \$50.00
- Celestron \$70.00



# Soldering Irons





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- Hakko FX-888D \$100.00



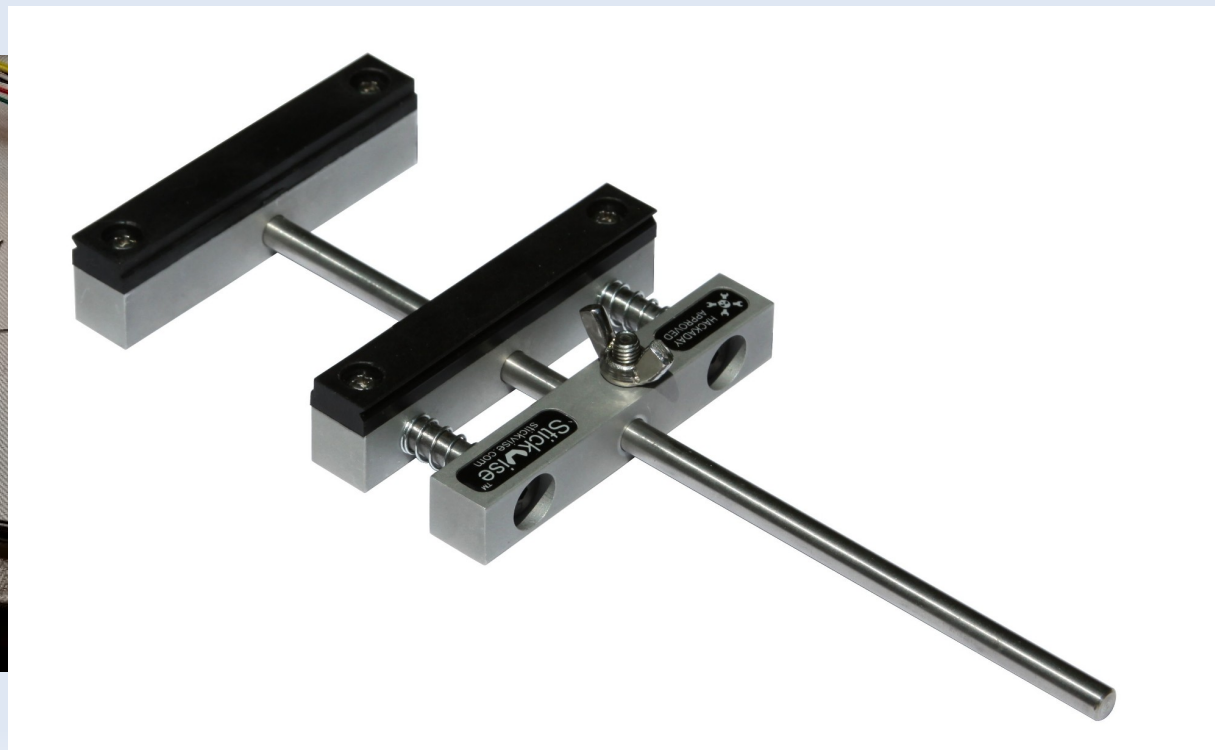
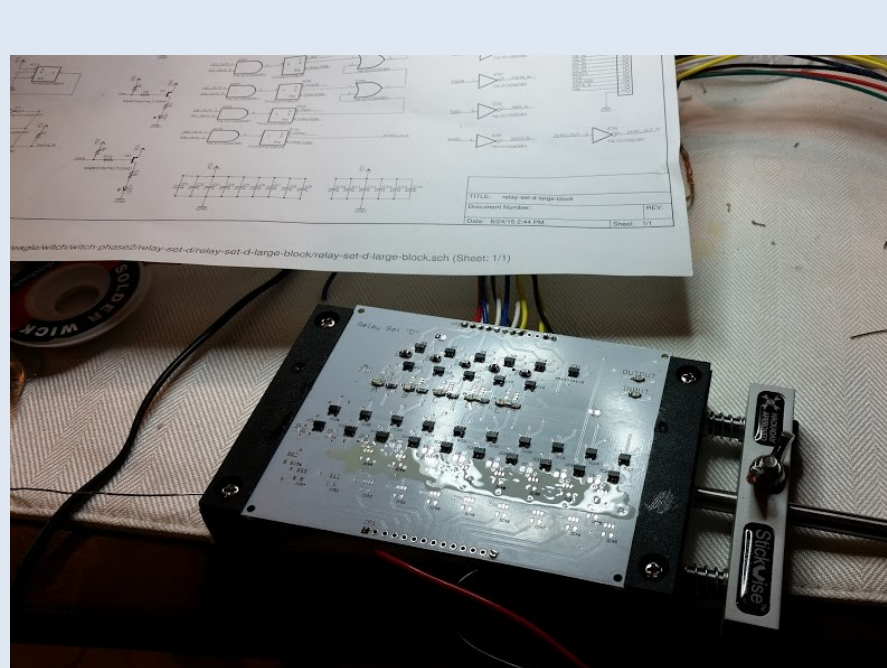
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- Hakko FX-888D \$100.00
- TS100 Portable \$70.00



# Soldering Irons

- Hakko FX-888D \$100.00
- TS100 Portable \$70.00
- Stickvise \$30.00





# Conclusion

- There are some good bargains out there

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- Documentation

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Questions?